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EXAMINER	
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ART UNIT	PAPER NUMBER
2154	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,561	WESTFALL ET AL.	
	Examiner	Art Unit	
	Joshua Joo	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/21/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-37 are presented for examination.

2. Claims 1-37 are rejected.

Claim Objections

3. Claim 31 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10, 11, 13-15, 17, 18, 20, 35, 37 are rejected under 35 U.S.C. 102(e) as being unpatentable by Iwata, US Patent #5,933,425.

6. As per claim 10, Iwata teaches an invention for selecting a candidate path and determining if the candidate path satisfies requested Quality of Service parameters (QOS hereinafter). Iwata's invention comprises of:

a) Identifying a candidate paths for a newly requested services, the newly requested service having a service description, wherein the newly requested service is in an Internet Protocol (IP) network, the IP network having a plurality of routers, wherein the identified candidate path travels through a set of the plurality of routers (Col 3, line 64 - Col 4, line 11. A connection request is received from a user terminal, indicating a destination. A node receives the connection request and selects an optimal path to the destination. Col 5, lines 4-21. Routine selects a path from a plurality of paths from a path table and calculates the administrative weights of each path. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.);

b) Determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller checks to see if the selected path satisfies all the QOS values specified in the connection request. Col 4, lines 4-9. Path comprises of nodes.); and

c) If the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path satisfies the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

7. As per claims 15 and 35, Iwata teaches an invention for selecting a candidate path and determining if the candidate path satisfies requested QOS parameters. Iwata's invention comprises of (Col 3, lines 29-32. Node receiving the user request includes an ATM switch):

a) Identifying a set of one or more candidate paths for a newly requested service in an Internet Protocol (IP) network having a plurality of routers, wherein each of the candidate paths travels through a different subset of plurality of routers, the newly requested service having a service description (Col 3, line 64 - Col 4, line 11. A connection request is received from a user terminal, indicating a destination address and QOS parameter values. A node receives the connection request and selects an optimal path to the destination. Col 4, lines 38-44. Node goes through a list of possible paths. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.).

b) Eliminating a candidate path from the set of candidate paths whose corresponding subset of plurality of routers cannot be configured to meet the set of requirements specified by the service description (Col 4, lines 30-42. The node excludes the link that does not meet the requested QOS parameter from a list of candidates to be selected and selects an optimum path from the list for the next attempt.); and

c) Translating a remaining candidate path into a set of router management commands to configure the subset of plurality of routers (Col 4, lines 2-5. The node acts as a source node by transmitting a setup message to an adjacent node. The setup message contains the routing information for the path. The routing information is used successively by intermediate nodes along the path to the destination.). Col 4, lines 59-63. If the selected path satisfies the connection request, a setup message is transmitted to the nodes.).

8. As per claim 18, Iwata teaches an invention for selecting a candidate path and determining if the candidate path satisfies requested QOS parameters. Iwata's invention comprises of:

a) A provisioning engine coupled to a network toplogy database and a provisioned services database, the provisioning engine to identify candidate paths for newly requested services in a network, each of the newly requested services having a corresponding service description that specifies a corresponding set of requirements, wherein each of the candidate paths are to include a subset of routers of a plurality of routers in the network, wherein the provisioning engine is to determine whether a set of candidate paths meet the corresponding set of requirements (Col 3, lines 46-63. The node that receives the user request contains a QOS routing controller, which is associated with the link state database, used to find optimum paths. The node also contains a path table, which contains topology of the network. Col 3, line 64 - Col 4, line 11. A connection request is received from user terminal, indicating a destination address and a QOS parameter value. A node receives the connection request and selects an optimal path to the destination. Col 5, lines 4-21. Routine selects a path from a plurality of paths from a path table and calculates the administrative weights of each path. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.); and

b) A translation module coupled to the provisioning engine, the translation module to translate the set of requirements for a set of candidate paths that meet the corresponding set of requirements, the translation to generate corresponding router management commands to

configure routers in the plurality of routers (Col 4, lines 2-5. The node acts as a source node by transmitting a setup message to an adjacent node. The setup message contains the routing information for the path. The routing information is used successively by intermediate nodes along the path to the destination.). Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes.).

9. As per claim 11, Iwata teaches the method of claim 10, further comprising:

a) Identifying a plurality of candidate path for a newly requested service, the newly requested service having a service description, wherein the newly requested service is in an Internet Protocol (IP) network, the IP network having a plurality of routers, wherein the identified candidate path travels through a set of the plurality of routers (Col 3, line 64 - Col 4, line 11. A connection request is received from user terminal, indicating a destination. A node receives the connection request and selects an optimal path to the destination. Col 5, lines 4-21. Routine selects a path from a plurality of paths on a path table and calculates administrative weights of each path. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.);

b) For each candidate path, determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller checks to see if the selected path satisfies all the QOS values specified in the connection request.); and

c) For each set of requirements, if the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding

set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

10. As per claim 13, Iwata teaches the method of claim 10, further comprising:

a) If the identified candidate path cannot fulfill the set of requirements and there are other untried candidate paths, then identifying a different candidate path and repeating steps b) and c) (Col 4, lines 30-42. The node excludes the link that does not meet the requested QOS parameter from a list of candidates to be selected and selects an optimum path from the list for the next attempt.),

b) Determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller checks to see if the selected path satisfies all the QOS values specified in the connection request.); and

c) If the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

11. As per claim 14, Iwata teaches the method of claim 10, wherein the translating includes querying a network topology database to determine the capabilities of each router of the plurality of routers (Col 3, lines 46-63. A QOS-based routing controller is associated with a link state database to perform pre-calculation of link costs and find optimum paths from the first node to other network nodes. The relationships are stored in a path table as optimum topology data. The data stored in the path table are updated when the contents of the link state database is updated. The path table is used by the controller to establish a connection request.).

12. As per claims 17 and 37, Iwata teaches the invention of claims 15 and 35, wherein the identifying includes querying a provisioned services database to add together the bandwidth commitments of previously deployed services to determine if each of the candidate paths has sufficient uncommitted bandwidth for the newly requested service (Col 5, lines 38-40. The controller checks the available bandwidths of the possible paths to see if it satisfies the user's request.).

13. As per claim 20, Iwata teaches the provisioning system of claim 18, wherein the translation module is to store the configuration of the routers in the provisioned services database (Col 3, lines 46-63. A QOS-based routing controller is associated with a link state database to find optimum paths from node A to other network nodes. The relationships are stored in a path table, where the data stored in the path table are updated when the contents of the link state database is updated. The path table is used by the controller to establish a connection request. Col 5, lines 34-43. During a connection request, the controller checks the

available bandwidth of the link. Col 4, lines 5-7. The setup message, which contains routing information, is stored in one of the tables.).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 12, 16, 19, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425 and in view of Bertin et al, US Patent #6,400,681 (Bertin hereinafter).

16. As per claims 12, 16, 19, 36, Iwata teaches of QOS parameters for establishing a connection, where the parameters include available cell rate, delay, and jitter for a connection (Col 3, lines 35-40).

17. Iwata does not specifically teach the invention, wherein the set of requirements includes one or more of quality of service, security, reachability, and data collection specifications.

18. Bertin teaches an invention for calculating a path for a connection request based on QOS parameters. The parameters include security, reachability, and data collection specifications (Col 9, lines 14-43; Col 7, lines 33-40; Col 14, lines 26-40).

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Bertin because both inventions deal with selecting

a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to provide security, reachability, and data collection improves the capability of Iwata's invention by further providing services that meet user's demands and allowing for different types of data to be passed through the network that required a more reliable, secure connection.

20. Claims 30, 31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425 and in view of "Official Notice".

21. As per claim 30, Iwata teaches an invention for selecting a candidate path and determining if the candidate path satisfies requested QOS parameters. Iwata's invention comprises of (Col 3, lines 29-32. Node receiving the user request includes an ATM switch):

a) Identifying a candidate paths for a newly requested services, the newly requested service having a service description, wherein the newly requested service is in an Internet Protocol (IP) network, the IP network having a plurality of routers, wherein the identified candidate path travels through a set of the plurality of routers (Col 3, line 64 - Col 4, line 11. A connection request is received from user terminal, indicating a destination. A node receives the connection request and selects an optimal path to the destination. Col 5, lines 4-21. Routine selects a path from a plurality of paths from a path table and calculates the administrative weights of each path. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.);

b) Determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller

checks to see if the selected path satisfies all the QOS values specified in the connection request.); and

c) If the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

22. Iwata does not teach of a plurality of newly requested services. However, "Office Notice" is taken for the concept of having a plurality of newly requested services. It would have been obvious to one of ordinary skill in the art at the time the invention was made for Iwata's invention to service multiple requests because it improves the capability of Iwata's invention by providing multiple users of guaranteed service requests at once while not having to wait for an existing connection to terminate.

23. As per claim 31, Iwata teaches the machine-medium of claim 30, wherein operations further comprises:

a) Identifying a candidate paths for a newly requested services, the newly requested service having a service description, wherein the newly requested service is in an Internet Protocol (IP) network, the IP network having a plurality of routers, wherein the identified candidate path travels through a set of the plurality of routers (Col 3, line 64 - Col 4, line 11. A connection request is received from user terminal, indicating a destination. A node receives the connection request and selects an optimal path to the destination. Col 5, lines 4-21. Routine

selects a path from a plurality of paths from a path table and calculates the administrative weights of each path. Col 4, lines 7-11; Fig. 1, The path from the source to the destination involves a plurality of nodes. Col 3, lines 24-29. The communications network is an ATM network comprising of a plurality of nodes.);

b) Determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller checks to see if the selected path satisfies all the QOS values specified in the connection request.); and

c) If the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

24. Iwata does not teach of a plurality of newly requested services. However, "Office Notice" is taken for the concept of having a plurality of newly requested services. It would have been obvious to one of ordinary skill in the art the time the invention was made for Iwata's invention to service multiple requests because it improves the capability of Iwata's invention by providing multiple users of guaranteed service requests at once without user's having to wait for a previous connection to terminate.

25. As per claim 33, Iwata teaches the machine-readable medium of claim 10, further comprising:

a) If the identified candidate path cannot fulfill the set of requirements and there are other untried candidate paths, then identifying a different candidate path and repeating steps b) and c) (Col 4, lines 30-42. The node excludes the link that does not meet the requested QOS parameter from a list of candidates to be selected and selects an optimum path from the list for the next attempt.),

b) Determining whether the set of the plurality of routers can be configured to meet a set of requirements specified by the service description (Col 4, lines 57-61. A controller checks to see if the selected path satisfies all the QOS values specified in the connection request.); and

c) If the set of the plurality of routers are determined to meet the set of requirements, then translating the set of requirements into a corresponding set of router management commands to configure each router in the set of the plurality of routers (Col 4, lines 59-63. If the selected path does satisfy the connection request, a setup message is transmitted to the nodes. Col 4, lines 5-11. The routing information is used successively by intermediate nodes along the path to the destination.).

26. As per claim 34, Iwata teaches the machine-readable medium of claim 10, wherein the translating includes querying a network topology database to determine the capabilities of each router of the plurality of routers (Col 3, lines 46-63. A QOS-based routing controller is associated with a link state database to perform pre-calculation of link costs and find optimum paths from node A to other network nodes. The relationships are stored in a path table as optimum topology data. The data stored in the path table are updated when the contents of the

link state database is updated. The path table is used by the controller to establish a connection request.).

27. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425 and "Official Notice" and in view of Bertin, US Patent #6,400,681.

28. As per claim 32, Iwata teaches of QOS parameters for establishing a connection, where the parameters include available cell rate, delay, and jitter for a connection (Col 3, lines 35-40).

29. Iwata does not specifically teach the machine-readable medium, wherein the set of requirements includes one or more of quality of service, security, reachability, and data collection specifications.

30. Bertin teaches an invention for calculating a path for a connection request based on QOS parameters. The parameters include security, reachability, and data collection specifications (Col 9, lines 14-43; Col 7, lines 33-40; Col 14, lines 26-40).

31. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Bertin because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to provide security, reachability, and data collection improves the capability of Iwata's invention by further providing services to meet user's demands and allowing for greater types of data to be passed through the network that required a more reliable, secure connection.

32. Claims 1, 3-5, 21, 23-25, are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425 and in view of Bertin, US Patent #6,400,681 and Anerousis et al, US Patent #6,760,775, (Anerousis hereinafter).

33. As per claims 1 and 21, Iwata teaches an invention for selecting a candidate path and determining if the candidate path satisfies requested QOS parameters. Iwata's invention comprises of (Col 3, lines 29-32. Node receiving the user request includes an ATM switch):

a) Identifying network elements at endpoints of a data connection channel (Col 3, lines 64-Col 4 lines 5. A connection request is received from a user that contains the destination address and the QOS parameter values, indicating the destination terminal, where a node reads the destination address and QOS values.),

b) Generating a candidate path between the network elements at the endpoints (Col 4, lines 24-28. Routing controller selects a path as a candidate using a requested QOS parameters.),

c) Validating the candidate path by determining whether the candidate path provides at least a service requirement selected from a group consisting of bandwidth, delay, and jitter (Col 3, lines 57-64. Routing controller checks to see if the selected path satisfies all the QOS values specified in the connection request. Col 3, lines 36-40. The QOS parameter includes available cell rate, e.g. bandwidth, delay, and jitter.),

d) Configuring network elements along a validated candidate path to implement the service requirement (Col 4, lines 57-65. If the path satisfies all the QOS values, a transmit setup message is sent to the nodes of the path.).

34. Iwata teaches of validating a candidate path by checking if the path provides QOS parameters such as available cell rate, delay, and jitter (Col 3, lines 35-39).

35. Iwata does not specifically teach that the QOS requirement consists of minimum bandwidth, maximum bandwidth, maximum delay, maximum jitter, reliability, inclusion of network elements capable of acting as security gateways that bracket untrusted sections of the candidate path, and data collection capability

36. Bertin teaches an invention for calculating a path for a connection request based on QOS parameters. The parameters that the nodes have to satisfy comprise of maximum bandwidth, maximum delay, maximum jitter, encryption, reachacbility, and data collection capability (Col 7, lines 30-40; Col 9, lines 14-40; Col 11, lines 7-19; Col 13, line 43 – Col 14, line 40; Col 19, lines 27-61).

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Bertin because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to include maximum bandwidth, maximum delay, maximum jitter, encryption, and data collection capability improves Iwata's invention because guaranteeing these QOS requirements for a network connection will prevent delay and satisfy real time delivery constraints as well as non-real time delivery constraints.

38. Iwata teaches of validating a candidate path by checking if the path provides QOS parameters such as available cell rate, delay, and jitter (Col 3, lines 35-39).

39. Iwata does not specifically teach that QOS requirement consists of reliability. Anerousis teaches an invention for routing connection requests based on a variety of criteria, which

includes QOS requirements. The routing decision provides reachability and reliability (Col 11, lines 15-20; Col 12, lines 55-56; Col 15, lines 26-30;).

40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to combine the teachings of Iwata and Anerousis because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Anerousis to provide reliability to the path improves Iwata's invention by ensuring that the packet will reach its destination and guaranteeing that the user's connection is maintained.

41. As per claims 3 and 23, Iwata teaches the invention of claims 1 and 21, further comprising recording a configuration performed on the network elements (Col 4, line 1-9. The routing information of the optimum path is stored in one of the tables on the node.)

42. As per claims 4 and 24, Iwata does not teach the invention of claims 1 and 21, further comprising: identifying data connections channels that have been provisioned to implement a service, for each data connection channel, identifying a path followed by the data connection channel and a configuration performed to implement the service at network elements along the path, undoing the configuration performed to implement the service at the network elements along the path, and removing a recording of the configuration performed to implement the service on the network elements along the path.

43. Bertin teaches an invention where, a path is stored in the Routing Database, which satisfies the connection request to implement the service (Col 18, lines 6-10). The path stored in the Routing Database is extracted. If the path is outdated, the path is removed from the

Routing Database (Col 17, lines 33-53). Routing Database updates connections by canceling registration or deleting links that was used to implement the service (Col 19, lines 10-15).

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Bertin because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to extract paths stored in the Routing Database , remove the outdated paths, and updating the Routing Database by canceling registration or deleting links that was used to implement the service improves the integrity of Iwata's invention because removing outdated information from the database will prevent the system's memory to become full, which will also assist in reducing process time of retrieving information.

45. As per claims 5 and 25, Iwata does not teach the invention of claims 1 and 21, further comprising: identifying a change in a routing table entry; identifying data connection channels provisioned on a data link connected to an interface referenced by the routing table entry prior to the change; for each data connection channel provisioned on the data link, identifying whether the data connection channel is affected by the change; and for each data connection channel affected by the change, de-provisioning the data connection channel affected by the change, and for each data connection channel affected by the change, re-provisioning the data connection channel affected by the change.

46. Bertin teaches an invention, where the Topology Database maintains links associated with a path (Col 19, lines 11-13). A test determines if a configuration update relates to a change in the link state, such as the failure of a link. Do to the failing link, if an alternate link is not available, all paths using that link are deleted. However, if an alternate link is available, the

failing link is replaced by the parallel one in all paths stored in the Path Table. The paths are updated with the parallel link characteristics (Col 21, lines 40-60).

47. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to maintain a database with the link connections, to check affected links due to a link failure, and to route the affected links to alternate path improves the reliability of Iwata's invention because it will ensure that the end to end connections are maintained without disrupting the traffic.

48. Claims 2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425, Bertin et al, US Patent #6,400,681 Anerousis, US Patent #6,760,775 and in view of "Official Notice".

49. As per claims 2 and 22, Iwata teaches the invention:

a) Identifying network elements at endpoints of a data connection channel (Col 3, lines 64-Col 4 lines 5. A connection request is received from a user that contains the destination address and the QOS parameter values, indicating the destination terminal, where a node reads the destination address and QOS values.).

b) Generating a candidate path between the network elements at the endpoints (Col 4, lines 24-28. Routing controller selects a path as a candidate using a requested QOS parameters.).

c) Validating the candidate path by determining whether the candidate path provides at least a service requirement selected from a group consisting of group consisting of

bandwidth, delay, and jitter (Col 3, lines 57-64. Routing controller checks to see if the selected path satisfies all the QOS values specified in the connection request. Col 3, lines 36-40. The QOS parameter includes available bandwidth, delay, and jitter.).

d) Configuring network elements along a validated candidate path to implement the service requirement (Col 4, lines 57-65. If the path satisfies all the QOS values, a transmit setup message is sent to the nodes of the path.).

50. Iwata teaches of validating a candidate path by checking if the path provides QOS parameters such as available cell rate, delay, and jitter (Col 3, lines 35-39).

51. Iwata does not specifically teach that the QOS requirement consists of minimum bandwidth, maximum bandwidth, maximum delay, maximum jitter, reliability, inclusion of network elements capable of acting as security gateways that bracket untrusted sections of the candidate path, and data collection capability

52. Bertin teaches an invention for calculating a path for a connection request based on QOS parameters. The parameters that the nodes have to satisfy comprise of maximum bandwidth, maximum delay, maximum jitter, encryption, reachacbility, and data collection capability (Col 7, lines 30-40; Col 9, lines 14-40; Col 11, lines 7-19; Col 13, line 43 – Col 14, line 40; Col 19, lines 27-61).

53. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Bertin because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Bertin to include maximum bandwidth, maximum delay, maximum jitter, encryption, and data collection capability improves Iwata's invention because guaranteeing

these QOS requirements for a network connection will prevent delay and satisfy real time delivery constraints.

54. Iwata teaches of validating a candidate path by checking if the path provides QOS parameters such as available cell rate, delay, and jitter (Col 3, lines 35-39).

55. Iwata does not specifically teach that QOS requirement consists of reliability. Anerousis teaches an invention for routing connection requests based on a variety of criteria, which includes QOS requirements. The routing decision provides reachability and reliability (Col 11, lines 15-20; Col 12, lines 55-56; Col 15, lines 26-30;)

56. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to combine the teachings of Iwata and Anerousis because both inventions deal with selecting a candidate path based on QOS parameters from the user's connection request. Furthermore, the teachings of Anerousis to provide reliability to the path improves Iwata's invention by ensuring that the packet will reach its destination and guaranteeing that the user's connection is maintained.

57. Iwata does not teach of a plurality of data connections to generate a candidate path. However, "Office Notice" is taken for the concept of having a plurality of data connections is known and accepted in the art. It would have been obvious to one of ordinary skill in the art the time the invention was made for Iwata's invention to have a plurality of data connections because it will improve the capability of Iwata's invention by allowing the invention to service multiple requests at once and would prevent the single channel to be overburden with traffic.

58. Claims 6-9, 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata, US Patent #5,933,425, Bertin, US Patent #6,400,681 Anerousis, US Patent #6,760,775 and in view of Gupta et al, US Patent #6,584,075, (Gupta hereinafter).

59. As per claims 6 and 26, Iwata teaches assigning weights to links to generate a candidate, where the controller selects a path having minimum link cost (Col 5, lines 22-32; Col 7, lines 12-15).

60. Iwata does not specifically teach the invention, wherein generating a candidate path between the network elements at the endpoints further comprises assigning to a link in a graph that is not in a preferred area of a network a weight that is different than a weight assigned to a link in the graph that is in a preferred area of the network.

61. Gupta teaches an invention for routing for unicast and multicast connections, where the administrative weight of a link may depend on the network administrator's preference such preferring to route data over less expensive links (Col 4, lines 20-31).

62. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Iwata and Gupta because both inventions deal with providing an administrative weight on links to select paths for connections. Furthermore, the teachings of Gupta to provide an administrative weight to route data on preferred links improves Iwata's invention by allowing connections to be established over regions of the network where it will be less expensive to route data, thus improving cost efficiency.

63. As per claims 7 and 27, Iwata, Bertin, Anerousis, and Gupta taught the invention as defined in claims 6 and 26. Iwata, Bertin, Anerousis further teach wherein assigning a link in a

graph that is not in a preferred area of a network a weight that is different that a weight assigned to a link in the graph that is in a preferred area of the network further comprises adjusting a weight assigned to a link in the graph depending on a proportion of usage of available bandwidth of the link (Col 5, lines 22-33. The administrative weight in the link is based on the available cell rate e.g. available bandwidth.).

64. As per claims 8, 9, 28, and 29, Iwata, Bertin, Anerousis, and Gupta teach the invention of claims 7 and 27, wherein adjusting a weight assigned to a link in the graph depending on a proportion of usage of available bandwidth of the link further comprises:

Adjusting a weight assigned to a link in the graph having lighter usage relative to other links in the graph to a weight indicating a greater preference; and

Adjusting a weight assigned to a link in the graph having heavier usage relative to other links in the graph to a weight indicating a lesser preference.

Adjusting a weight assigned to a link in the graph having heavier usage relative to other links in the graph to a weight indicating a greater preference; and

Adjusting a weight assigned to a link in the graph having lighter usage relative to other links in the graph to a weight indicating a lesser preference.

(Col 5, lines 22-33, Fig.4. The administrative weight is based on the available cell rate e.g. available bandwidth of the link. Col 3, lines 41-46. The administrative weight is assigned bythe network provider to each of the links on the network.).

Conclusion

65. A shortened statutory period for reply to this Office action is set to expire THREE

MONTHS from the mailing date of this action.

66. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966 and fax number is 571 273-3966. The examiner can normally be reached on Monday to Thursday 8 to 5:30.

67. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on 571 272-3964.

68. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 3, 2005
JJ

John Follansbee